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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,148	12/08/2003	Takahashi Hidehiro	8836-207 (IB12227-US)	2320

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EXAMINER	
FLORES, LEON	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/730,148	HIDEHIRO ET AL.	
	Examiner	Art Unit	
	Leon Flores	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-6* is/are allowed.

6)☒ Claim(s) *7,9,10,12 and 13* is/are rejected.

7)☒ Claim(s) *8 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 7-13 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. **Claims (7,10, 12-13) are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen et al (hereinafter Jensen) (US Patent 6,362,762 B1) in view of Smith et al (hereinafter Smith) (US Patent 5,796,772).**

2. Re claim 7, Jensen discloses a multi-mode communication device operable in a first mode and a second mode, comprising: switching means for switching received analog signal to a delta-sigma modulator in the first mode and to an analog-to-digital converter in the second mode (See fig. 5, col. 6, lines 19-29, 53-67, col. 7, lines 1-15);

and convolution modules for multiplying filter factors with the output of the delta-sigma modulator in the first mode to generate first-mode waveforms (See col. 7, lines 32-37); and output means for outputting the first-mode waveforms after a predetermined delay in the first mode to restore first-mode output waveforms and outputting the second-mode output waveforms without the predetermined delay in the second mode. (See figs. 5 & 7A, col. 6, lines 19-29, 53-67, col. 7, lines 1-15)

But the reference of Jensen fails to explicitly teach multiplying PN codes with the output of the analog-to-digital converter in the second mode to generate second-mode output waveforms.

However, Smith does. (See fig. 2: 101, 104, 107, 111, & col. 6, lines 33-35) Smith discloses multiplying PN codes (107) with the output of the analog-to-digital converter (101) in the second mode to generate second-mode output waveforms.

Therefore, taking the combined teachings of Jensen and Smith as a whole. It would have been obvious to one of ordinary skills in the art to have incorporated this feature into the system of Jensen, in the manner as claimed and as taught by Smith, for the benefit of transmitting a message to a receiver without the message being detected by a receiver for which it is not intended.

Re claim 10, the combination of Jensen & Smith further discloses that wherein the filter factors are factors of a first-mode low pass filter. (In Jensen, see fig. 4: 121, col. 2, lines 59-60. Furthermore, one skilled in the art would know that GSM systems utilize filter factors that are factors of low pass filter.)

Re claim 12, the combination of Jensen & Smith further discloses that wherein the output of the delta-sigma modulator is 1 bit (In Jensen, see col. 7, lines 32-37), the output of the PN code generator is n bits (In Smith, see col. 6, lines 33-35), and the filter factors are n bits, n being a multiple of 2. (In Jensen, see col. 7, lines 32-37)

Claim 13 is a method claim corresponding to system claim 7. Hence, the elements in system claim 7 would have necessitated the steps performed in method claim 13. Therefore, claim 13 has been analyzed and rejected w/r to claim 7.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen et al (hereinafter Jensen) (US Patent 6,362,762 B1) and Smith et al (hereinafter Smith) (US Patent 5,796,772), as applied to claim 7 above, and further in view of Xiaowei Zhu et al (hereinafter Zhu), "The RF module Design for W-CDMA/GSM Dual Band and Dual Mode Handset", State Key Laboratory of Millimeter Waves, Department of Radio Engineering, 2001 IEEE.

3. Re claim 9, the combination of Jensen and Smith further discloses that wherein the analog signal received in the first mode is GSM signal (In Smith, see col. 19, lines 49-51), but the references of Smith & Jensen fails to specifically disclose that the second mode is WCDMA signal. However, Zhu does. (See abstract) Zhu discloses RF front-ends for GSM/W-CDMA dual band and dual mode mobile terminal.

Therefore, taking the combined teachings of Jensen, Smith & Zhu as a whole, it would have been obvious to one of ordinary skill in the art to have modified the system

of Jensen, as modified by Smith, in the manner as claimed, and as taught by Zhu, for the benefit of providing the user with voice and multi-media data in one carrier simultaneously.

Allowable Subject Matter

4. Claims 1-6 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter: The art of record does not suggest the respective claim combinations together and nor would the respective claim combinations be obvious with:

6. Re claim 1, the limitation, *"A multi-mode communication device comprising: a first switch for receiving an analog signal; a delta-sigma modulator for sampling the analog signal inputted through the first switch when operating in a first mode; an analog-to-digital converter for sampling the analog signal inputted through the first switch when operating in a second mode; a second switch for selectively receiving an output of the delta-sigma modulator and an output of the analog-to-digital converter; a plurality of sequential convolution modules for multiplying filter factors by the output of the delta-sigma modulator in the first mode to generate first-mode waveforms, and multiplying PN codes by the output of the analog-to-digital converter in the second mode to generate second-mode output waveforms; and a selection unit for delaying outputs of the sequential convolution modules by a predetermined time in the first mode to restore first-mode output waveforms".* Claims 2-6 depend on claim 1.

7. **Claims (8 & 11) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

8. Re claim 8, the limitation, *" The multi-mode communication device of claim 7, wherein each of the convolution modules includes: a memory for storing the filter factors; a third switch for selectively receiving the filter factors and the output of the analog-to-digital converter according to the first mode or the second mode; a PN code generator for generating PN codes in the second mode; a fourth switch for selectively receiving the output of the delta-sigma modulator and the PN codes according to the first mode or the second mode; a multiplier for multiplying the filter factors with the output of the delta-sigma modulator in the first mode, and for multiplying the output of the analog-to-digital convertor by the PN codes in the second mode; and an accumulator for accumulating the outputs of the multiplier to generate output waveforms".* Claim 11 depends on claim 8.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LF
July 26, 2007

David Payne

DAVID C. PAYNE
SUPERVISORY PATENT EXAMINER